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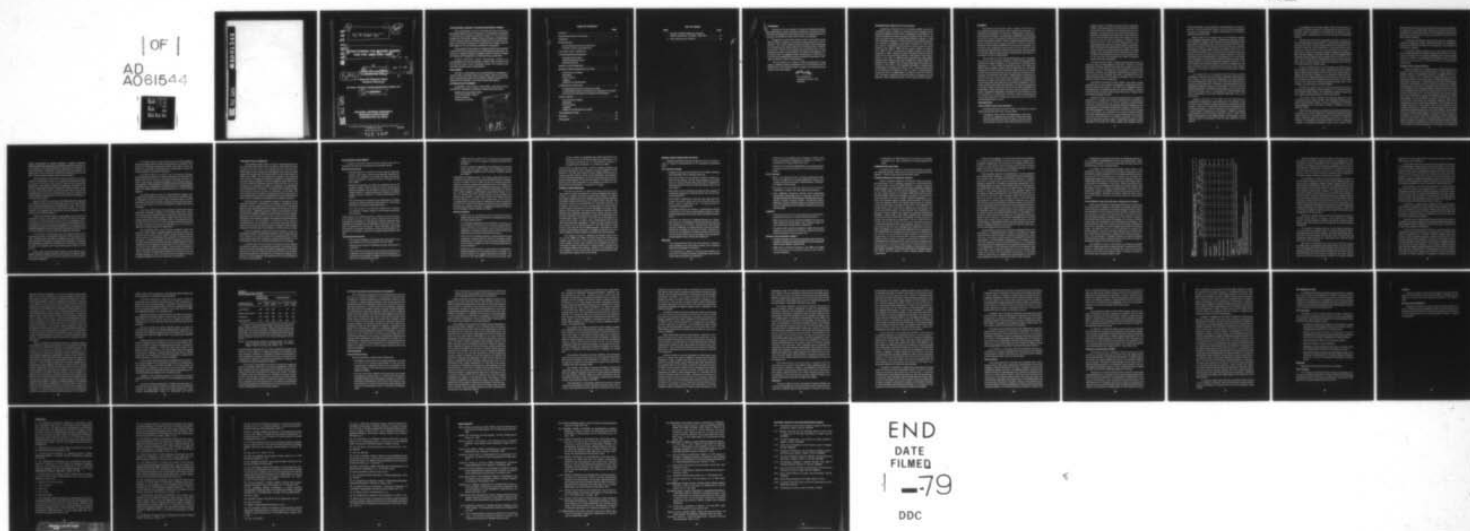
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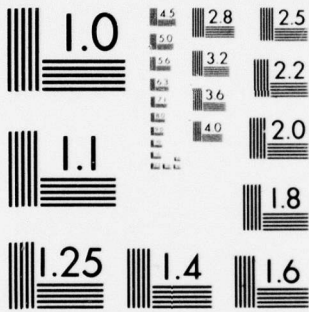
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**STRUCTURING THE MARINE CORPS
FOR THE 1980's AND 1990's**

by

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LTC John Grinalds, USMC
The National War College

NOV 27 1978

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Associate Research Fellow
Research Directorate

NATIONAL SECURITY AFFAIRS MONOGRAPH SERIES 78-6

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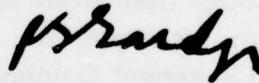
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FOREWORD

Designing forces capable of meeting anticipated defense contingencies is a highly complex undertaking. Lieutenant Colonel Grinalds addresses the controversial issue of an appropriate structure for the US Marine Corps over the next two decades.

Suggestions have been made to alter the structure of the Marine Corps to enable it to conduct armored warfare in a NATO scenario. The author examines these proposals using techniques of consistency and trend analysis. He concludes that a "NATO-structured" Marine Corps would be inconsistent with a force designed to meet more probable Third World contingencies. On the other hand, he suggests certain adjustments in reserve structure and force capabilities to ensure successful employment in Europe, as well as in other contingencies.

This evaluation, by a Marine officer experienced in force design, deserves careful consideration by all concerned with the capability of our Armed Forces to support the national security policy of the United States.



R. G. GARD, JR.
Lieutenant General, USA
President

BIOGRAPHICAL SKETCH OF THE AUTHOR

Lieutenant Colonel John S. Grinalds, USMC, wrote this monograph while a student at The National War College and an Associate Research Fellow with the Research Directorate of The National Defense University during the academic year 1977-78. He was graduated from the United States Military Academy in 1959 with a bachelor's degree in military science and received a bachelor's degree in geography from Oxford University in 1963. After serving as a Company Commander at Camp Lejeune, North Carolina, from 1963 to 1966, and as a Senior Advisor in Vietnam from 1966 to 1967, he received a master's degree from Oxford University in 1967. Lieutenant Colonel Grinalds served as aide-de-camp to the Commanding General, Fleet Marine Force Pacific, Hawaii, from 1967 to 1968 and later attended the United States Marine Corps Command and Staff College from 1968 to 1969. Subsequently, from 1969 to 1970, he was a Manpower/Force Structure Analyst in the Office of the Assistant Secretary of Defense and served again in Vietnam from 1970 to 1971. A White House Fellow on the White House Staff from 1971 to 1972, he was Manpower Programs Officer, Headquarters, US Marine Corps from 1974 to 1977. Currently, Lieutenant Colonel Grinalds is assigned to the 3d Battalion, Second Marine Division, Camp Lejeune, North Carolina.

SUMMARY

The Marine Corps has been recently the focus of considerable discussion about how it should be structured, i.e., organized and equipped, for maximum effectiveness in the evolving defense environment. The Secretary of Defense, the Brookings Institution, and the Congress—especially the Senate Armed Services Committee (SASC)—have all suggested significant adjustments to Marine Corps force structure, in order to meet the demands of the modern battlefield. The purpose of this paper is to evaluate the suggested adjustments in the context of the environment that may exist over the next 20 years, and the extent to which the Marine Corps should incorporate the adjustments in anticipation of future requirements.

The evaluation finds that the adjustments, such as adding more armor and vehicular mobility to offset Soviet capabilities, overlook the higher probability of requirements for Marine Corps employment in Third World confrontations during the 1980's and 1990's where strategic mobility, tactical flexibility, and immediate availability will be critically important. Restructuring as a mechanized force would provide just the opposite characteristics. However, the structure may need a hedge against employment in Central Europe, which could be provided by increasing the proportion of armor and related units in the Marine Corps Reserve. The structure also may need more counterforce capability—for example, antitank and antiaircraft weapons—to meet the proliferation of modern weapons throughout the Third World. Adaptation of technology to save manpower costs may help to support the necessary investment. Regardless, the Marine Corps should not lose the versatility of employment inherent in the current structure which will become increasingly important as Third World confrontations begin to occur.

BACKGROUND

Current Marine Corps Force Structure¹

The National Security Act of 1947 is the basis for current Marine Corps force structure. The act states:

The Marine Corps, within the Department of the Navy, shall be so organized as to include not less than three combat divisions and three air wings, and such other land combat, aviation, and other services as may be

organic therein. The Marine Corps shall be organized, trained, and equipped to provide fleet marine forces of combined arms, together with supporting air components, for service with the fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign. In addition, the Marine Corps shall provide detachments and organizations for service on armed vessels of the Navy, shall provide security detachments for the protection of naval property at naval stations and bases, and shall perform such other duties as the President may direct. However, these additional duties may not detract from or interfere with the operations for which the Marine Corps is primarily organized.²

"For service with the fleet" indicates that the Marine Corps is, above all, part of a Navy-Marine Corps team. "Seizure" and "land operations" indicate missions that require the team to be an amphibious force for the projection and presence of naval power overseas. However, the additional requirement to perform "such other duties as the President may direct" indicates that the amphibious force should be as flexible as possible in terms of when, where, and how it can be employed.

The Marine Amphibious Force (MAF) is the basic combat organization for the conduct of amphibious operations and subsequent operations ashore. The MAF is an integrated force of combined arms, consisting typically of a Marine Division, a Marine Aircraft Wing, combat support units from Force Troops, and a Force Service Support Group.

A Marine Division is configured specially for amphibious operations. It includes three infantry regiments each consisting of three infantry battalions, an artillery regiment of three artillery battalions, separate tank and assault amphibian battalions, plus units designed to facilitate the amphibious assault. The Marine Aircraft Wing operates in conjunction with the Division as an integral part of the MAF, and provides a full range of tactical aviation (TACAIR) capabilities as well as enough helicopters to lift roughly one-third of the Division in a heliborne assault. Force Troops provide additional combat support capabilities needed to sustain operations of the MAF as a whole, notably self-propelled medium

and heavy artillery, communications, reconnaissance, and military police. The Force Service Support Group provides additional engineer, transportation, supply, maintenance, and medical support to the entire MAF.

Naval forces are an integral part of the amphibious assault and subsequent operations ashore. Amphibious shipping, landing craft, and beach logistics units transport the assault echelon (AE) of the MAF to the assault area, and move it ashore with the help of Marine helicopters. The Assault Follow-on Echelon (AFOE), consisting of service support units and supplies, arrives via a mix of available amphibious and commercial shipping. Navy and Marine aviation and naval gunfire support provide air defense, interdiction, and bombardment for the assault force. To the extent that geography and the enemy situation permit, pertinent naval forces continue to support subsequent operations ashore. In any event logistics and communications continue to interface with the Navy and sea lines of communications (SLOC). Navy medical personnel are organic to Marine units and provide all medical support.

It is important to understand that the MAF is a task organization that can vary for different operations, depending on the mission, terrain, and enemy capabilities. The three Divisions and three Wings plus Force units do provide the building blocks to organize three typical MAF's. However, the building blocks can be aggregated differently among the three MAF's in order to enhance needed capabilities. The Marine Corps Reserve can provide building blocks as well, since it is organized as a Division/Wing team and on mobilization can provide selected individuals, units, or the entire team.

Smaller versions of the MAF can be organized for independent employment, using elements of the Division, Wing, and Force units. A Marine infantry regiment, an aircraft group, and support units form a typical Marine Amphibious Brigade (MAB). An infantry battalion, an aircraft squadron, and support units form a typical Marine Amphibious Unit (MAU). A MAB, for example, participated in the Dominican Republic crisis in 1965. Today, MAU's are deployed in the Mediterranean, the Caribbean, and the western Pacific as elements of the US naval presence in those regions.

As suggested at the outset, Marine Corps force structure is designed to provide flexibility of employment as well as an amphibious assault capability. Consequently, the Marine Corps exhibits certain characteristics in its force structure and operating doctrine.

Vehicles and other heavy equipment are kept to a minimum. This reduces space requirements in amphibious shipping and landing craft which permits faster loading and movement to the objective area and, most importantly, a more rapid and concentrated movement ashore during the assault. Although this discussion presumes movement aboard amphibious shipping, a MAF can also deploy via mobility forces, such as strategic sealift (commercial-type shipping) and strategic airlift (C-5 and C-141 aircraft). Such lift requires an administrative entry into the objective area, with no threat of enemy action and preferably with the port or airfield facilities in friendly hands.

Aviation provides much of the firepower and mobility that a Marine assault force needs to seize a beachhead and then operate ashore against sophisticated enemy forces. Since naval aviation is largely free of terrain limitations, it has greater worldwide employability than terrain-dependent tanks and vehicles. It also can operate through the difficult transition period from sea to land when artillery and tanks are immobilized aboard landing craft. It can, however, be constrained by adverse weather.

Protection against armored and mechanized forces is provided by lightweight antitank weapons, in concert with tanks and TACAIR close support. The lightweight weapons reduce size and weight, enhancing mobility of the ground forces.

All artillery, tanks, TACAIR, and mobility means are under centralized control within the MAF. This facilitates massing of firepower and maneuver means, as well as organization of different force packages, such as infantry, armored, or heliborne, to meet different threats.

Marine Corps training and operations policies are focused on a concern for combat readiness.³ Professional excellence and a determination to succeed are upheld as primary and absolute values. Marines view the amphibious assault as a "must win" situation. An amphibious landing provides no room for temporary retreats or retrograde movements to gain time or muster forces.

Marines either advance across the beach and seize their objectives or they perish. Consequently, Marines are determined to be prepared for combat, and ready for the unexpected commitments that might arise from the broad and flexible character of the Marine Corps missions.

In summary, the Marine Corps force structure is designed to provide a strategically mobile, tactically flexible, and immediately ready force, linked to the Navy for the projection and presence of naval power overseas.

A question remains, however, as to the validity of this role and the effectiveness of the Marine Corps force structure in meeting the demands of the modern battlefield and its sophisticated weaponry. Some critics believe that the Marine Corps role and force structure are out of step with the evolving defense environment.

Criticism of the Current Structure

Critical comment on the effectiveness of Marine Corps force structure has come from several quarters. In 1975, Secretary of Defense James R. Schlesinger reported to Congress that an amphibious assault force "would have grave difficulty in accomplishing its mission of over-the-beach and flanking operations in a high threat environment."⁴ Expanding on this theme, the Brookings Institution published a study in 1976 that questioned "whether Marine ground units, short on firepower and cross-country mobility could stand up to the sophisticated, heavily armored forces that can be fielded by the Soviet Union and its allies—and if not, what should be done about it."⁵ The study resulted from concern about the military and political viability of amphibious assaults on hostile beachheads, the role of Marine air power, and the impact of the all-volunteer environment on manpower availability. The authors suggested that the continental geography of the USSR and the People's Republic of China (PRC) rules out any decisive role for amphibious forces in conflicts with those nations, the two most prominent potential adversaries of the United States. United States forces are already forward based in Europe and Asia, making it unnecessary to conduct amphibious invasions to regain a foothold on those continents. Given the requirement for an amphibious assault, however, the advent of precision-guided munitions (PGM) among potential adversaries in the Soviet bloc and even among Third World countries threatens the survivability of amphibious

forces concentrated for assault landings. In addition, declining levels of amphibious shipping and naval gunfire support limit the current capability for large amphibious operations. The authors argued that there is little sense in having the three active MAF's now extant when there is sufficient amphibious shipping to lift only one MAF. Similar problems plague naval gunfire support.⁶

Overshadowing the study's concern about the military viability of amphibious forces is the belief that domestic political constraints, fed by public reaction against the Vietnamese experience, make highly unlikely any overseas commitment of US forces, except where national interests are clearly at stake. Korea, Europe, the Middle East, and the Persian Gulf are possible contingencies, but the use of amphibious forces is limited by the military factors noted above as well as the political reluctance to exercise military power.⁷

Marine TACAIR is a concern of the Brookings study because of TACAIR's high cost and diminished utility in an environment that precludes extensive use of amphibious forces. The authors concluded that the Marine Corps should phase out aircraft involved in air defense and interdiction and rely instead on Navy and Air Force TACAIR support.⁸

Finally, the authors viewed as improbable the prospect that the Marine Corps could attract sufficient numbers of quality recruits in the all-volunteer environment to adequately man a three-MAF force structure and its supporting establishment. Consequently, any force structure adjustments, in response to the lessened probability of extensive amphibious warfare, should result in a smaller Marine Corps to meet the manpower constraint.⁹

In summary, the Brookings study generally favored restructuring part of the Marine Corps for inland combat in Europe, retaining some amphibious capability (one MAF maximum), and reducing the numbers of aircraft and manpower. The authors see amphibious warfare as outmoded and the defense of Central Europe, for example, as a more appropriate mission for the future.¹⁰

Since 1976, the annual SASC reports on the Marine Corps budget requests revealed a similar critical interest in Marine Corps force structure, approaching the subject from the issue of manpower availability.

The SASC Report on the Fiscal Year (FY) 1976 President's Budget requested that the Marine Corps study "its mission, force structure, manpower levels and quality" and report on how the Marine Corps might be re-sized and re-configured to match the projected supply of qualified manpower.¹¹

The SASC Report on the FY 1977 President's Budget recommended reductions in TACAIR manpower, and directed joint studies with the Air Force on air assault operations and with the Navy on the use of commercial shipping in low intensity amphibious assaults.¹² The studies on air assaults and commercial shipping presumed future employment of Marine forces in nonamphibious roles. The TACAIR reduction presumed Navy or Air Force TACAIR support.

The SASC Report on the FY 1978 President's Budget commented that the Marine Corps should continue its manpower quality standards, even at the cost of lower manpower levels, and that the Marine Corps should rectify the apparent bias favoring aviation over ground forces in terms of manpower quality and military hardware.¹³

Since the 1978 report was published, Senator Sam Nunn (Democrat, Georgia) a member of the SASC, stated that "significant force structure changes may be required if the Marine Corps is to be committed against highly mobile Soviet tank and mechanized infantry forces in a European conflict." Changes envisioned by Senator Nunn include "investing Marine ground forces with greater firepower and mobility, perhaps even at the cost of reduction in Marine tactical air capabilities."¹⁴

As summarized above, the consensus of Marine Corps force structure critics clearly suggests adapting the Marine Corps to a mission and structure more suited to inland combat in Europe rather than as an amphibious force prepared for worldwide employment. It is highly probable that this consensus will continue through the 1970's and influence decisions regarding Marine Corps organization and weapons procurement that will shape the force structure of the 1980's and 1990's. There remains, therefore, a need to evaluate the thesis that Marines should restructure for Europe in the light of the probable defense environment of the two decades beyond the 1970's, to ensure that the proposed structure changes anticipate correctly the demands of that period.

THE ANALYTICAL APPROACH

The evaluation begins with a review of significant factors in the defense environment that impinge on future Marine Corps missions and structure. The significance of the factors is determined by their relevance to the Marine Corps and by trends among them which may be creating different circumstances for the 1980's and 1990's. For purposes here, therefore, the "defense environment" includes such factors as legislation, Department of Defense (DOD) guidance, and the pressures which derive from current trends in defense analysts' thinking that are not yet formalized in directives but which are apparent in congressional and departmental comments. The thesis that the Marine Corps should restructure for Europe is exemplary of the latter. The environment also includes international and domestic factors which determine the nature and probability of future hostilities and which work to constrain the availability of necessary resources.

The final step of the evaluation makes a comparison of the dominant trends in the defense environment, the Marine Corps missions that are apparently evolving, and the ability of projected Marine Corps operating policies to prepare the structure for future requirements. "Operating policies" ensure that the Marine Corps has the force capability needed to perform Marine Corps missions. Operating policies would include force structure design, manpower, force training, logistics, and research and development. Programs are the packages of resources that support implementation of the policies. It should be noted that "policy" refers to the concept of how to perform a mission, while included "programs" are the resources necessary to implement the concept.

In the comparative process the critical function is to test for consistency. Areas of inconsistency become caution flags warning that missions or policies may not be appropriate to future requirements and that changes to appropriate elements in the environment, missions, or operating policies may be necessary.

A review will now be made of the Marine Corps defense environment, missions, and operating policies. The purpose of the review is not only to evaluate the specific suggestions of the SASC and other critics but also any other trends which should affect Marine Corps structure. Furthermore, the review will present an assessment of any apparent inconsistencies and recommendations on how to reconcile them.

THE DEFENSE ENVIRONMENT

Trends in pertinent environmental factors that will be important over the next two decades are postulated below.

Domestic Environment

- The population of youths of military age will decrease sharply, with fewer military-age persons available for service. The population of 18-year-old males will decline from 2.15 million in 1976 to a low of 1.6 million in the early 1990's.¹⁵
- Domestic programs will make an increasing call on the Federal budget, leaving relatively fewer resources for defense purposes. This projection is based on the decline already evident in defense outlays as a percent of Federal outlays, from 24.1 percent in FY 1976 to 22.8 percent in FY 1978.¹⁶
- The US economy will become more dependent on foreign sources of critical resources, particularly oil, and foreign markets for US exports, particularly food.¹⁷
- The US public's reluctance toward any military involvement overseas, based on the Vietnam experience, will continue.

Implications for defense policy: Trends in the domestic environment point to a body politic that will shun military involvements not based on vital security interests, although these interests will be determined increasingly by economic links overseas. Competition for manpower, other resources, and budget allocations will tighten ceilings on defense authorizations, especially for manpower, calling for increased effectiveness at less cost.

International Environment

- The world population will increase from the current 4 billion people to 6-7 billion people by the year 2000.¹⁸
- Resources will become increasingly scarce, particularly oil and food.¹⁹
- Third World countries will use political and economic pressures—such as higher prices for scarce resources—to accelerate the transfer of wealth from the industrialized North to the impoverished South.²⁰

- USSR military power will increase, striving toward superiority in both strategic and general purpose force strength.²¹
- Nuclear weapon capabilities will proliferate to countries other than the present nuclear club membership; so will sophisticated weaponry such as tanks, TACAIR, missiles, and PGM.²²

Implications for defense policy: The trends noted above point to a changing international environment characterized by a strengthening of USSR military power amidst an otherwise general diffusion of power outside the superpower orbit. This diffusion of power will be caused by an increasingly severe lack of resources, associated economic instability, and the proliferation of nations with nuclear weapons, sophisticated conventional forces, or corners on scarce resources. Soviet power will encourage more adventurism abroad in areas where direct confrontation with the United States is unlikely. The complexity of worldwide interdependence among nations needing each other's economic support will create more opportunities for crisis contingencies involving US economic interests, or *geopolitical interests related to the US strategic posture towards the USSR.*

Defense Guidance

- There will be increasing concern about the cost of defense and the need in particular to reduce Marine Corps overhead support costs.²³
- The Defense Department and Congress will continue to orient Marine Corps force structure toward NATO requirements, for example, more armor/antiarmor capability, increased mechanization, less TACAIR, and expanded mutual support among the services.²⁴
- There will be increasing pressure to reduce Marine Corps manpower requirements by means of increased capital investment in the structure, that is, trade-off manpower for more powerful weaponry and more mechanized service support systems.²⁵
- Restraints will continue on the amount of amphibious shipping available to move USMC forces to combat—currently enough to lift assault elements of one MAF. The balance of two active MAF's must move by common-user

airlift or sealift on schedules that reflect that there is not enough for all US forces to deploy simultaneously. Amphibious shipping lift for the assault echelon is programmed to increase to 1 1/3 MAF's by 1980.²⁶

Implications for defense policy: Trends in defense guidance are pressuring the Marine Corps towards a structure adapted to land warfare in Europe that would be more capital intensive than at present and less suited in terms of size, equipment, and capability to the traditional amphibious role and to the limited amount of amphibious and strategic lift that will be available. The result will be a Marine Corps less prepared for worldwide contingencies, but structured for participation in a land war in Europe.

MARINE CORPS MISSIONS

The earlier section on Marine Corps force structure described in detail the statutory missions assigned the Marine Corps. It is doubtful that these missions will change in the 1980's and 1990's, despite the trend in defense guidance toward adapting the Marine Corps force structure for inland combat in Europe. The statutory mission to be prepared for "such other duties as the President may direct" covers a broad spectrum and certainly would include commitment to a land campaign in Europe. Precedents for this were set in the Korean and Vietnam conflicts where Marines were employed essentially as land forces (except for the critically important Inchon landing in Korea and limited-scale landings along the coast of Vietnam). The other end of the spectrum of "such other duties" includes minor contingencies such as the Dominican Republic emergency in 1965 and crisis operations like the recapture of the SS *Mayaguez* in 1974. Both actions relied heavily upon Marine Corps responsiveness. The ability to move quickly by amphibious shipping or strategic air/sea lift, and to adjust to different tactical situations, provided that responsiveness.

The primary criterion in designing the Marine Corps structure for the 1980's and 1990's will be to ensure that the structure enables performance of the amphibious mission as well as the broad range of "such other duties as the President may direct." The trend to adapt the structure to inland combat in Europe must be evaluated against this criterion. Inherent in the evaluation will be a validation of the criterion itself. As the Brookings study noted, the amphibious mission may be outmoded.

MARINE CORPS OPERATING POLICIES

Projected operating policies the Marine Corps will follow in order to support accomplishment of its missions are postulated below.

Force Structure Design

- Combat forces will be maintained at the highest readiness state attainable within available resources.
- One active MAF will be oriented to NATO, another oriented to the Pacific, and the third prepared to go either way. The reserve Division/Wing team will be prepared to augment the active structure with individuals, units, or the entire team.²⁷
- Each MAF will be a balanced air/ground team capable of worldwide employment, although MAF's may not be identically organized.²⁸
- Each MAF's organization will be task organized from organic Division, Wing, and Force units with extra aviation, tanks, engineers, etc., to meet particular contingency requirements.²⁹
- The Marine Division will remain a predominantly infantry organization, helicopter transportable except for tanks, assault amphibians, and certain heavy vehicles and equipment.³⁰
- The MAF will continue to integrate aviation as a significant portion of its firepower and tactical mobility. Aviation will develop an all V/STOL (vertical/short take-off and landing) capability to enable aviation units even broader flexibility in support of the ground forces. Antitank munitions will be employed on attack aircraft and all aircraft including helicopters will be equipped with suppression devices against enemy antiaircraft weaponry.³¹

Manpower

- The organizational structure will continue to require a young enlisted force with rapid turnover, and a relatively high annual accession of recruits.³²
- The emphasis on quality in recruiting and retention will continue to improve manpower performance and reduce losses before expiration of enlistment.³³

- There will be increased use of women to reduce male military manpower requirements. However, no further civilianization of military billets will occur.³⁴
- There will be continued dependence on cross-service and on-the-job individual training, to reduce training overhead.³⁵

Force Training³⁶

- Major unit training will be in primarily amphibious operations, in brigade size or smaller; geographic locations will include the North European, Mediterranean, Caribbean, and Western Pacific areas.
- Periodic unit training will take place at military installations in desert and cold weather environments.
- Fully integrated air/ground training, which emphasizes coordinating supporting arms to include armored and mechanized training, will take place at the Marine Corps Air-Ground Combat Training Center, Twenty-Nine Palms, California, and joint airlift exercises will be held with the Air Force in conjunction with movement of Marine units to the training areas.

Logistics³⁷

- There will be a continuing amphibious orientation, depending primarily on a Navy interface and SLOC.
- Base structure will be balanced between the East and West Coasts (including Hawaii and Okinawa) toward Atlantic and Pacific requirements, respectively.
- Consistent with possible mobilization needs, the base and logistic structure will be the minimum required to provide sustained support for the combat units.

Research and Development (R&D)³⁸

- The Marine Corps will continue to satellite other services for weapons, vehicles, and other hardware not requiring special Marine Corps design characteristics.
- R&D input to the force structure in the 1980's and 1990's will primarily be in command, control, and communications systems.

- Orientation of R&D efforts will continue to be toward hardware, with less emphasis on concept development alone.

COMPARATIVE ANALYSIS

In comparing the trends in environmental factors, missions, and operating policies noted above, several inconsistencies seem apparent. These are identified and discussed below.

Probable Requirement for Marines: Europe?

Trends in relative USSR and Third World military and political power point to an increasing capability for action detrimental to US interests. Growing USSR strength in strategic weapons, reaching parity, or in the author's view, even superiority compared to the United States, will give Soviet strategists a hedge against any US nuclear reaction to increased USSR adventurism abroad. Growing USSR conventional strength, particularly in the Soviet Air Force and Navy, will give the USSR increased capabilities in Europe, and increased means to project power overseas. The balance in Europe between NATO and Warsaw Pact forces will probably continue under these conditions, since NATO, and especially the United States, which views NATO defense as a vital interest, will match any USSR moves to increase Warsaw Pact capabilities. On the other hand, the USSR may exercise its growing conventional strength in other parts of the world, because US conventional forces will be tied to the NATO contingency in terms of structure design and geographic placement. The tie to NATO will be reinforced by the inertia of US public sentiment against involvements elsewhere that might resemble Vietnam. The cost of providing forces to meet contingencies outside NATO will also deter consideration of commitments elsewhere. As a consequence, the United States will probably find over the next two decades that its military forces will be focused on NATO, but distracted increasingly by confrontations with indirect manifestations of USSR military power in areas of peripheral interest. The manifestations will probably be by proxy but direct brinksmanship should not be ruled out. Furthermore, the significance of the confrontations to US interests will probably not be apparent to the US political consensus until the fact, because of the preoccupation with NATO and the inertia of public feelings against military involvements.

There is the possibility, of course, that NATO will strengthen its forces so that USSR conventional forces, despite their increased capabilities, will be tied to the Warsaw Pact just to maintain a safe balance from the Pact's point of view. Growing military activism to the east by the People's Republic of China (PRC) could inhibit USSR adventurism similarly.

There remains, however, the proliferation of nuclear weapons and sophisticated weaponry to nations beyond the superpowers and nuclear club. An armed Third World, enmeshed in growing economic linkages and conflicts between North and South, presents a spectrum of possible contingencies independent of the US-USSR balance of power. Arab-Israeli conflicts; oil imbroglios in the Middle East, the Persian Gulf, and West Africa; and renewed conflict on the Korean peninsula are a few examples. Again, the full import of these contingencies to US interests probably will not be obvious until they occur as crises. There will be a need for some US forces to provide a military option to deal with these contingencies. A military option provides a potential use of force that should enhance diplomatic initiatives toward reconciliation, and an intervention force if all else fails. *Quick response will be essential.* Rapid movement of US forces to the contingency area will be necessary and the committed forces must be able to operate in all types of terrain and against different types of adversaries. Furthermore, there must be some depth to the package of forces to make it clear to Soviet or Third World strategists that the United States has enough staying power to deal effectively with the confrontations. Strategically mobile, tactically flexible, and immediately available forces will be required to meet the broad spectrum of contingencies that could occur.

Current Marine Corps force structure possesses these characteristics, as discussed earlier. However, the pressure to adapt the structure to inland combat in Europe by adding tanks, heavy artillery, and other vehicles would ill prepare the Corps for participation in the peripheral contingencies. The increase in vehicles and hardware for an Army-like structure is not compatible with amphibious lift capabilities now programmed and would result in an attenuation of the movement time to the contingency area. Once there, such a Marine expeditionary force, though task-organized, would not be optimally structured for a combat situation which did not replicate the characteristics of the European battlefield in terms of terrain and enemy order of battle.

Furthermore, to structure even part of the Marine Corps thusly, for example, mechanization of one or two active MAF's, would decrease the depth of the force package that Marines could provide quickly to the peripheral areas.

In summary, the inconsistency between these trends is that the Marine Corps will be pressured to modify its structure for the mechanized warfare expected on the European battlefield because growing Soviet strategic and conventional strength will increasingly galvanize US attention on NATO defenses. However, USSR adventurism and/or Third World crises will probably lead to confrontations elsewhere in the world. These confrontations will become the most probable requirement for Marine forces, while the Marine Corps, if it yields to mechanization, will become less responsive in terms of strategic mobility and the types of terrain it can accommodate. Moreover, the Marine Corps will lose to some extent the ability to perform its primary mission—amphibious warfare.

Current Marine Corps Force Structure: Adequate for Combat?

Given that peripheral contingencies become the most probable requirement for Marines in the 1980's and 1990's, and that the current structure provides the necessary strategic mobility and tactical flexibility for quick response, there remains a question about the adequacy of Marine combat power in the face of more sophisticated weaponry throughout the Third World. A question also remains about the structure's adequacy for combat in Europe, a less likely but considerably more demanding contingency. The Brookings study and other critics would say that the amphibious force is too vulnerable to nuclear weapons and PGM in the landing phase, that Marine aviation is too vulnerable to modern anti-aircraft systems, and that once ashore Marine ground forces lack the mobility and firepower to defeat enemy armored forces. In short, the advantage in strategic mobility and tactical flexibility provided by the current structure may be at the cost of combat effectiveness against the forces encountered.

The transfer of arms to Third World countries by the USSR and other major powers has created pockets of significant military power in Northeast Asia, the Middle East, Africa, South and Southeast Asia, and Latin America. Table 1 indicates the impact of this transfer over the period 1965 to 1975.

TABLE 1.

Number of States Deploying Advanced Military Equipment, by Region, 1965-1975¹

	NATO '65 '75	Warsaw Pact '65 '75	Other Europe '65 '75	Africa '65 '75	East Asia '65 '75	South Asia '65 '75	Middle East ² '65 '75	Latin America '65 '75	Oceania '65 '75	Total '65 '75
Supersonic aircraft	12 12	6 7	5 5	1 7	5 11	2 4	5 13	1 7	1 1	38 67
Submarines ³	11 12	3 3	2 3	0 1	3 5	0 1	2 3	5 6	0 1	26 37
Major surface combatants ⁴	10 10	1 2	2 2	1 2	4 7	2 2	1 2	5 6	2 2	28 35
Medium/heavy tanks	13 13	7 7	5 5	5 9	9 11	3 4	11 14	14 16	1 1	68 80
Antishipping missiles	0 11	4 5	1 4	0 2	2 10	0 1	1 8	0 6	0 1	8 48
Surface-to-air missiles	12 13	7 7	3 4	0 5	4 8	1 3	3 9	1 2	1 2	32 53
Surface-to-surface missiles ⁵	9 9	7 7	0 0	0 0	2 4	0 0	0 3	1 1	0 0	19 24

¹Figures for 1975 include states which have specified category of equipment on order, but have not necessarily received or deployed it.

²Includes Gulf states.

³Includes nuclear and conventional-powered types.

⁴Includes vessels exceeding 1,500 tons built or refurbished after World War II.

⁵Includes missiles with maximum ranges exceeding 20 statute miles.

Source: The International Institute for Strategic Studies, *Strategic Survey*, 1976, p. 20.

Combat capability among the nations involved will vary with force size and numbers, logistic support, and competence on the battlefield, and be influenced by the important effect of terrain. However, the Marine Corps should be prepared to encounter to some degree in peripheral confrontations an emphasis on armor, artillery, attack aviation, as well as evidence of antitank, antiaircraft, and even electronic warfare (EW) capabilities. Precision-guided munitions are obviously a problem.

The question of Marine Corps effectiveness in support of NATO against Warsaw Pact armored forces depends upon the counterforce capability of Marine organic weapons and the role Marines play in the defense of Europe. For example, Marines might move directly next to Army forces in Central Europe to stop a primary attack by Pact forces. However, it is more likely that a primary Pact attack would strike not at the NATO main strength in Central Europe but attack instead through north Germany and the Low Countries cutting across US lines of communications and effectively flanking US and West German forces to the south. Restoration of the salient would then be of prime importance, and a more probable role for Marines would be to conduct amphibious operations through the English Channel, North Sea, or Baltic Sea to hit the Pact salient's north flank while other NATO forces counterattacked on the south flank.

Helping to protect sea lines of communications across the Atlantic could also be a primary role for Marines in a NATO conflict. Without Marines to defend vital points across the North Atlantic gap, the whole US role in the defense of Europe would be threatened.

On balance, it appears that the current Marine amphibious role and structure can serve NATO in several significant ways—counterattacks on the NATO flanks, controlling areas important to US lines of communication with Europe, and in a reinforcing role elsewhere. Restructured as a mechanized force, Marines would lose much of this versatility.

But what if the Warsaw Pact *does* attack in Central Europe and Marines are needed as reinforcements? Will the current structure be adequate? If the conflict results in Pact armor columns pressing NATO formations heavily, the Marines' role should be essentially defensive, anchored on obstacles like rivers, built-up areas, and hills, and using aviation, artillery, and organic antitank

weapons to blunt the Pact thrust. The current structure would be well suited to such a defense.

On the other hand, if the conflict calls for Marines to support a counteroffensive campaign with armor-like mobility, only a third of a typical MAF could operate as a mechanized force using organic tanks, assault amphibians, artillery, and mirror transport. The remainder would leapfrog forward by helicopter. The proportion of the MAF that could be mechanized could be doubled, however, by attaching necessary units from another MAF. Even with these capabilities, however, the MAF could not provide a counterpart capability to an Army armored or mechanized force.

Nevertheless, there are many locations in Central Europe which would require an assault force in a counteroffensive campaign to breach enemy positions situated on barriers to mechanized forces such as rivers, demolished built-up areas, forests, and otherwise difficult terrain. The Marines could provide the assault forces (their essential function), breach the obstacles for armored forces, and then follow in train to mop up.

In summary, it appears that the Marine Corps current structure supports a versatility of roles it could play in support of NATO and, if committed to the Central Region, Marine forces could provide a useful adjunct to NATO armored forces for defensive and special assault situations. Marines could not provide a full armored or mechanized capability.

A question now remains whether the current structure has an adequate counterforce capability to handle Warsaw Pact weaponry and whatever modern weaponry Third World nations might bring to bear in peripheral confrontations.

A precise measurement of Marine Corps counterforce capabilities is beyond the scope of this paper but it seems clear that the combined arms of a MAF—aviation, artillery, tanks, and infantry organic antitank weapons—provide the nucleus of an effective counterforce capability. Issues over the level of effectiveness probably would center on the density and balance among the various arms and weapons. For example, a Marine Division now has 288 Dragon weapons versus an Army infantry division's 243. However, a comparison of TOW's gives the Army unit a 162 to 72 edge.³⁹ But this comparison overlooks the combat power provided by Marine aviation.⁴⁰ Increasing the density of ground

weapons may be unnecessary in view of the aviation support available. Yet, is there a need for more ground weapons, such as tanks and artillery, in view of TACAIR's possible vulnerability to modern anti-aircraft systems? In terms of probable employment, the answer is no, based on the conclusion earlier that to add more vehicular weapons and equipment would reduce strategic mobility and tactical flexibility, and degrade the amphibious assault capability—an undesirable effect in view of the increasing probability of peripheral contingencies and the probable use of Marines in amphibious assault roles on NATO flanks. Aviation will be needed to offset the lack of naval gunfire and to counter the sophisticated aviation forces prevalent in both cases. Administrative landings will probably be impossible, or extremely risky, and aviation will be an important element of the combat power needed to project the landing force ashore and inland, or to provide adequate security if the landing is not opposed. Given the growth in force capabilities in the Third World, it would be imprudent to plan on anything but assault-oriented landings, in the event of surprise resistance. Naval aviation, including Marine TACAIR, will have an important function throughout.

Should TACAIR be reduced because of a possibly reduced requirement for amphibious assaults, or the possibility that Navy or Air Force TACAIR can provide the necessary support? The answer to this question depends on the probability of a contingency that requires an amphibious assault followed by operations ashore essentially independent of Navy carrier TACAIR or land-based Air Force TACAIR. As discussed above, landings in Europe and even peripheral confrontations will require an assault orientation, in view of USSR strength and Third World capabilities for devastating surprise attacks. Amphibious assaults call for aviation support, specifically TACAIR. But can Navy and Air Force TACAIR always support that requirement? Probably not; for example, the requirement for a Baltic Sea amphibious flanking attack on a Warsaw Pact penetration in Northern Europe would probably find Navy and Air Force supporting fleet operations or embattled forces in the central region. There is a high probability that Marine TACAIR would have to augment TACAIR support of the landing phase out of forward staging areas in northern NATO. Other scenarios can be postulated. Almost all of them can be argued away, however, if it is presumed that Navy or Air Force TACAIR are available regardless of requirements elsewhere. So the question

remains: What other contribution does Marine TACAIR make that merits keeping it in the Marine force structure?

The first contribution might be in the nature of Marine organization for combat. The continuous, total integration of Marine air and ground elements in doctrine, training, and operations provides increased effectiveness not otherwise available from short-term attachment of Navy or Air Force units to a MAF just established ashore in an objective area.

Another contribution made by Marine TACAIR is to provide a land-based arm of naval aviation for use in sea control operations. Operating from both carriers and shore installations, Marine TACAIR can fly into sites that must be secured for sea control purposes.

A third contribution Marine TACAIR makes is to total US TACAIR requirements. In a NATO-Warsaw Pact comparison, for example, the TACAIR balance favors the Warsaw Pact by some 5,300 aircraft to NATO's 2,960 aircraft. The comparison is detailed in Table 2.

Deleting Marine TACAIR from the structure would make worse an already serious imbalance in favor of the Warsaw Pact. All US TACAIR on hand, including Marine TACAIR, is needed to offset the Pact capability. It could be argued that transfer of the Marine aircraft to the Navy or Air Force might retain the needed overall level. However, a transfer would do away with a needed capability for expeditionary TACAIR organized to operate both afloat and ashore in support of naval campaigns.

It thus can be argued that Marine TACAIR merits retention in the structure based on its significant contribution in several areas: the combat power it provides the MAF in any type combat, its expeditionary capability, the support role it can play in naval campaigns, and the contribution it can make to the defense of Europe in balancing the Warsaw Pact TACAIR strength.

However, in the foregoing review of the adequacy of Marine Corps structure for modern combat, two inconsistencies still stand out.

The first involves the adequacy of Marine Corps structure in an offensive role inland in Europe. The MAF lacks the vehicular mobility for troops, artillery, and other combat support for a fast-moving counteroffensive inland in conjunction with NATO

TABLE 2.

NATO-Warsaw Pact TACAIR

Tactical Aircraft in Operational Service	Northern and Central Europe ¹			Southern Europe		
	NATO	Warsaw (of which Pact USSR)		NATO	Warsaw (of which Pact USSR)	
Light bombers	185	225	200	---	50	50
Fighter/ground-attack	1,250	1,375	950	450	250	100
Interceptors	375	2,050	950	275	700	200
Reconnaissance	275	550	400	150	100	50

¹ The figures here include the appropriate British and American aircraft in Britain, American aircraft in Spain, and Soviet aircraft in the western USSR. They do not, however, include the American dual-based squadrons, which would add about 100 fighter-type aircraft to the NATO totals, nor French squadrons with perhaps another 400 fighters. Carrier-borne aircraft of the US Navy are excluded, but so are the medium bombers in the Soviet Air Force, which could operate in a tactical role.

Source: The International Institute for Strategic Studies, "The Theatre Balance between NATO and the Warsaw Pact," *The Military Balance 1976-1977* (London: IISS, 1976), p. 102.

armored forces. Although this is the *least probable contingency* for Marines in the 1980's and 1990's (peripheral confrontations are most probable; defensive or amphibious offensive employment is more probable for Europe), the Marine structure or the plan for the employment of Marines in Europe should attempt to reconcile this inconsistency regarding battlefield mobility.

The second inconsistency concerns counterforce capability against increased USSR and Third World capabilities. Since aviation support is such an important part of the MAF arsenal, the effects of enemy EW and antiaircraft systems are critical. The effect of weather must be considered, too. The Marine structure should account for the need to enhance and protect its aviation assets; and, in a period when aviation's worldwide versatility is becoming more important yet more threatened by increasingly sophisticated counterair capabilities, the Marine structure should account for the need to hedge against loss of aviation support.

Are Future Commitments and Resources Compatible?

The increasing complexity of the international environment and the increasing probability of peripheral confrontations translate into a higher probability of commitments of Marine forces to combat or quasi-combat situations. Army force structure and deployments will be increasingly "locked into" the NATO scenario, and less available for commitments to contingencies elsewhere that might reduce the deterrent effect in Europe. A high probability of commitment no doubt will engender initiatives within the Marine Corps to provide combat units with the latest weaponry and equipment, and to provide the very best in training and services, all of which means increasing costs. At the same time, however, trends in the domestic environment will see an increasing demand on Federal budgets by domestic programs and a corresponding reluctance to pay for more defense. In addition, manpower availability will be decreasing, making it increasingly difficult to meet annual recruiting requirements, which for the Marine Corps are relatively high. Related to the resource shortage will be a continuing constraint on the amount of amphibious shipping and mobility forces available to move Marine forces to combat. The inconsistency in these trends is that the Marine Corps probably will be required to meet a wider spectrum of contingencies in the 1980's and 1990's and on a more frequent basis, yet with less resources available.

CONCLUSIONS

Force Structure Design

The inconsistencies noted thus far indicate that:

- The Marine Corps structure is being pressured to change to a form not readily applicable to the kinds of expeditionary capability which will be required of the United States in the international environment of the 1980's and 1990's.
- On the other hand, Marine force structure must remain adaptable to employment in a NATO conflict against growing Warsaw Pact conventional strength, as well as in peripheral contingencies; furthermore, the structure must be prepared to contest the sophisticated weapons and doctrine increasingly evident in probable contingency areas.

- Yet, this scenario of growing demands on the Marine Corps over the next decade must be supported by a budget of decreasing ability to provide wherewithal.

These conflicting constraints appear capable of resolution by adhering to a force structure that is most flexible in terms of its ability to meet the varying terrain and types of forces that might be encountered in peripheral contingencies (the most probable requirement), and that is most easily transportable by current and programmed amphibious shipping and mobility forces (the major resource constraint). In addition, the structure must be adaptable to the requirements of the NATO contingency. It would appear that the current "amphibious" structure best meets these specifications, with some exceptions, as discussed earlier.

The problem of encountering increased Soviet capabilities in Europe and modern weapons on an increasing basis throughout the Third World can be met in part by task organizing the committed MAF('s) with pertinent units from uncommitted active and reserve forces. To this end a hedge against the lack of tactical mobility for any active MAF's committed to an inland offensive campaign in Europe might be to increase the proportion of reserve motor transport, assault amphibian, self-propelled artillery, and tank units that could be mobilized quickly for follow-on augmentation, realizing of course that there would be a delay before these units could join the MAF('s) in Europe. In addition, there remains a requirement to consider carefully the need for designing additional antitank, antiaircraft, and EW capabilities into the amphibious structure without increasing its size and lessening its mobility and flexibility. Although not discussed in detail thus far, EW and the ability it provides to protect vital MAF command and control communications from enemy interference is a first step to successful coordination of firepower and maneuver—EW capability is therefore essential. Furthermore, aviation should have extensive all-weather capabilities and suppression devices to counter antiaircraft systems. Independent employment of the Marine Corps in areas outside NATO would require that these increased capabilities be organic to the Marine Corps. The extent of these increased capabilities is beyond the scope of this paper, but it seems clear that program initiatives should begin in that direction. Doctrinal improvements to help counter the threats posed by PGM, armor, antitank, and antiaircraft weapons are also fundamental to preparing for the 1980's and 1990's.

Presuming that increasing the reserve tanks, amphibians, etc., provides an adequate "mechanized/mobility" capability, and that designing new "anti-" systems into the current structure provides an adequate counterforce capability, there remains the problem of how to deploy three MAF's quickly enough for them to be effective in the roles already discussed. Sequential landings using turnaround amphibious shipping are a possibility but would probably take too long. Another possibility is to deploy one MAF in an amphibious assault followed by an airlift and/or sealift of subsequent MAF's into the objective area secured by the initial landing. The follow-on MAF('s) could enter with the additional units needed for extended operations beyond the amphibious objective area. It may be necessary to dedicate and even configure certain sealift vessels for this mission to ensure adequate closure times in the objective area.

The problem that PGM and tactical nuclear weapons present to an amphibious force concentrated for assault is perplexing. It is also universal in the sense that all General Purpose Forces eventually must mass to concentrate combat power on the objective. The concentration of forces becomes immediately a target for PGM or nuclear weapons. Army armored forces and mechanized infantry, Navy carrier task forces, and Air Force TACAIR installations suffer the same vulnerability. The answer to the problem will probably be operational—achieving strategic and tactical surprise, or political—the implied threat of escalation to nuclear war.

The problem of having to do more "defense" with decreasing quantities of resources poses difficult trade-off decisions, alleviated somewhat by the possibility of investing in new technology as a means to simultaneously improve combat effectiveness and lower operating costs.

The trends in the area of resource availability indicate that manpower will be more costly and difficult to obtain, suggesting that one trade-off approach might be to trade manpower strength for new weapons. Another might be to shift manpower under authorization ceilings in order to strengthen combat mission-related forces, clearly giving priority to the latter.

The application of technology might help as well to reduce manpower requirements in both combat and support units. For example, systematized material handling equipment and motor

transport, such as a vehicle "family" consisting of one prime mover and several trailer-types to replace several different single purpose vehicles, would create efficiencies in maintenance that should save manpower. Similarly, pursuing the concept of an all V/STOL fighter and attack force with common propulsion, navigation, communications, and gunnery systems should create maintenance manpower savings as well as achieve the improved performance and tactical flexibility for Marine aviation that is embodied in the V/STOL concept.

In ground combat forces more firepower might be introduced into the infantry and artillery battalions in order to offset decreasing manpower availability. Increasing the density of Dragon weapons in the infantry battalion is one example. The use of PGM in the artillery battalion to increase per round effectiveness might allow a reduction in the numbers of artillery pieces per unit and the associated manpower. On the other hand, use of PGM without giving up the savings would increase the unit's counterforce capability.

Other ideas might include incorporating a "high-low" mix in Marine Corps armor which utilizes a main battle tank in only limited numbers; the balance of the requirement would consist of a much smaller armored vehicle, at the regimental level perhaps, representing a hybrid of light tank/assault gun/antitank gun characteristics. The increased firepower might allow an offsetting reduction in manpower as well as increase the regiment's counterforce capability.

Another direction that the application of technology might take is to reduce the size and weight of combat service support hardware in order to lighten the load for the air-ground team, as well as the entire logistic system that provides their requirements; the ultimate effect of such action would be to decrease the size of the MAF's service support relative to the mobility forces available to move the assault follow-on echelon (AFOE), yet without decreasing the MAF's combat effectiveness. It is doubtful that the assault echelon (AE) of the MAF, comprised of combat and combat support units that must land in the assault, could be reduced in size. All of the combat power inherent in the AE will be necessary to counter an increasingly sophisticated threat. However, the AFOE, consisting of service support units and supplies, might be streamlined to allow quicker movement to the

contingency area. This concept could be pursued through the vehicle "family" and an all-V/STOL aviation force discussed earlier, which should result in streamlined maintenance requirements. Another initiative that might apply here is the introduction of PGM to increase the effectiveness per round and thereby decrease the size and weight of equivalent firepower basic loads.

The major objective of all such initiatives should be to enhance Marine combat capabilities through the readdressal of manpower resources, the introduction of new technology to offset decreasing manpower availability, and the further application of technology to enhance mobility force lift capability through a sort of "miniaturization" of the Marine Amphibious Force's AFOE. The initiatives discussed above are only examples of what might be done in an attempt to reconcile increasing mission requirements with decreasing resource levels over the next 20 years. Some initiatives may be complementary; others may conflict in that they save manpower, reduce the size of the AFOE, and increase combat power, yet may be more costly overall. Consequently, the development and execution of initiatives to reconcile the requirements/resources inconsistency must be subjected to a necessarily complex trade-off process that attempts to optimize combat effectiveness over the years in terms of mobility, tactical flexibility, and firepower under changing annual constraints of manpower and dollar ceilings. Nevertheless, the ultimate result of setting such initiatives in motion should be a Marine Corps in the 1980's and 1990's that is better prepared for combat than if current force structure design remained static, absorbing manpower and dollar cuts by simply reducing and not redesigning structure as the years go by.

The conclusions, up to this point, address only the consistency of trends in the Marine Corps operating policy on force structure relative to trends in the defense environment and the mission requirements which evolve from them. The conclusions below consider trends in the other operating policies, such as manpower and force training, as they relate to trends in the defense environment through the 1980's and 1990's.

Manpower

Trends in Marine Corps manpower policies probably will continue to emphasize a young enlisted force with a high turnover, requiring a relatively high annual accession of recruits. The future

of the Marine Corps mission—assault combat—puts a premium on the strength and vigor of youth in the ranks of the ground forces. The structure of the ground forces results in a relatively lean population of officers and senior noncommissioned officers so that the requirement to retain large numbers out of the base of first term enlisted personnel is small. Hence, so long as the trend in force structure remains amphibious in nature, this manpower policy is well suited. On the other hand, as initiatives begin to apply new weapons technology in order to save manpower, the impact will probably be to save manpower in the first term enlisted force, and reduce the annual accessions accordingly. This assumes of course that the manpower saved is not reinvested elsewhere in the combat forces, or allowed to migrate into organic maintenance units in order to support the new technology. (Technology designs should attempt to avoid the latter, by adequate maintenance floats and by modular design principles which allow "black box" replacement and repair of equipment at center depots.)

If the first term force becomes smaller, it will allow an increased emphasis on manpower quality, a trend already in motion and proving beneficial in terms of improved professional performance, disciplinary rates, and losses before expiration of enlistment.⁴¹ In fact, early losses have already decreased to the point where the Marine Corps is now meeting its recruiting goals with relative ease, a fact which belies the concern of the Brookings study.⁴² Future recruiting conditions are expected to be more difficult. However, a higher quality first term force in the future could alleviate the recruiting problem by further reducing the early losses. The improved quality will also help to facilitate the introduction of new technology—training and operations with the new weapons and equipment will require intelligent and resourceful Marines for maximum effectiveness.

The effect of initiatives in applying the manpower-technology trade-off and improving manpower quality, therefore, should reduce accession requirements cumulatively, a condition consistent with a dwindling manpower pool over the next 20 years. It should be noted, however, that the manpower technology trade-off cannot be pushed so far that the Marine Corps becomes mechanized and unable to exercise the mobility and flexibility necessary to meet probable requirements worldwide. The changes one can expect in this direction will therefore probably be marginal.

The increased use of women is consistent with the dwindling manpower pool. Constraints on this policy are twofold: the extent to which women can assume combat roles, the predominant occupational specialty of Marines, and the extent to which women in the force restrict the size of the rotation base that supports unaccompanied overseas assignments where women cannot serve. Liberalization of these factors could open the force to more women. Barring that, about 5 percent of the force is the maximum potential for use of women in the Marine Corps.⁴³

Increased use of civilians is limited by the same factors that limit the use of women. Civilianization initiatives in the early 1970's exhausted the potential available in that concept, to the point where the Marine Corps structure is now *over*-civilianized by about 800 billets.⁴⁴ Considering the present overseas rotation base, the unit rotation policy will ameliorate this situation.

Individual training philosophy that emphasizes on-the-job training and cross-service training is consistent with trends in defense guidance that emphasize reduction in overhead manpower. The Marine Corps, for example, trains about 37 percent of its entry level specialized skill requirements at the schools of other services. Consequently, Marine Corps training overhead is less than it otherwise might be, even though the Marine Corps sends augmentation instructors to the other services' schools.⁴⁵

In summary, it appears that the operating policies on manpower are roughly consistent with the trends in the defense environment, mission requirements, and force structure design policies that will obtain over the next 20 years.

Force Training

The current policies in this area are consistent with a force design policy that views amphibious deployment as the most probable commitment Marines will face. In addition to its normal amphibious assault training in the Mediterranean, Caribbean, and Western Pacific, the development of an air-ground combat training center at Twenty-Nine Palms, California, has permitted the exercise of units Marine Corps-wide in the types of terrain and mechanized operations that might obtain in the Middle East and even Europe. Exercises in Northern Europe, cold weather areas, and Korea help to ensure adaptability to those climes and potential combat conditions. It will be particularly important to ensure that

some of these exercises are conducted jointly with Army ground units as well as the mobility forces, so that the full spectrum of deployment contingencies is exercised. In short, the tactical flexibility of the Marine Corps to meet varying terrain, types of enemy forces, and theater scenarios (including NATO) will in large part stem from an ambitious and aggressive force training program, resting on an inherently logical force design policy.

Logistics

The amphibious nature of the logistic system, with its world-wide orientation and Navy interface, is consistent with the force design conclusions. At the same time, however, initiatives should begin to reduce the size of the logistic train supporting the MAF, and to maximize the throughput of the airlift and sealift by adaptation of the MAF elements to standardized containers that best utilize available space on carriers.

In addition, the Marine Corps should continue to develop with the Navy the concept of the seaborne mobile logistic system. This concept incorporates the latest amphibious ships' capabilities for on-board maintenance of Marine organic equipment, with the result that all logistic support for the Marine force emanates from amphibious ships that bring the Marines to the objective area.⁴⁶ This reduces significantly the support "tail" ashore and permits rapid reembarkation and redeployment of the landing force.

Research and Development (R&D)

The Marine Corps "satellites" R&D funding with other services to develop and procure items which will satisfy Marine Corps requirements. The Marine Corps shares in the R&D costs to the extent that special design features are incorporated at Marine Corps request. The Marine Corps develops its own items only for special purposes peculiar to the Marine Corps mission, such as a new assault amphibian vehicle. In fact, the Marine Corps is tasked by DOD to do only that R&D applicable to its mission.

Research and development efforts recently have been devoted primarily to command, control, and communications items and this trend will continue. The orientation of R&D efforts is primarily to hardware, with somewhat less emphasis on the development of concepts alone which might be employed to improve combat effectiveness. Most conceptual development is linked to the doctrine for employment of a new weapon or equip-

ment, in essence how to apply new technology. However, it should be noted that the R&D process is not always clear as to what comes first—concept or technology. Suffice it to say that most Marine Corps R&D has as an endpoint some type of hardware. This trend should continue and is consistent with the need to apply technology to the replacement of manpower, to enhance ground force weapons systems combat power, and to reduce the size of Marine Corps organizations and the weight of their weapons and equipment in order to reduce the size of the AFOE and its closure time to the objective area. All of this is in keeping with conclusions about force structure design.

However, in addition to the effort to adapt new technology, Marine Corps R&D efforts should continue to address the development of tactical concepts for the employment of the Marine Corps force structure against different enemy capabilities in different scenarios. New concepts of operations could complement significantly the incorporation of additional counterforce capability. Much could be learned, for example, from historical studies of combat in Europe, Korea, and the Middle East, which could be translated into useful operational concepts for today. The important point would be that the new, or revised, concepts would be highlighted for operations and training purposes, and sanctioned for use by commanders, the purpose of the effort being to maximize the effectiveness with which Marine commanders at all levels employ the evolving force structure. It is important that the Marine Corps R&D process address how new tactical concepts might reduce the threats posed by modern weaponry, for example, the threat of enemy PGM to the amphibious force concentrated in an objective area, or by enemy anti-aircraft systems to Marine aviation. The use of over-the-horizon night approaches to the objective area is an example of the former. The use of night operations for helicopter lifts and air-launched "smart" bombs from outside the enemy's anti-aircraft envelope are examples of the latter. Weaving new tactical concepts together with more potent weaponry should ensure that the Marine Corps force structure is adequate for combat in the 1980's and 1990's against both USSR and Third World forces.

In summary, R&D efforts should be directed toward support of force design initiatives, while simultaneously developing new tactical concepts for employment of the force against varied threats.

RECOMMENDATIONS

In viewing the operating policies discussed above, it appears that most of them are consistent with trends in the Marine Corps defense environment, missions, and force structure design. Initiatives are needed only to complement force structure design initiatives concluded earlier as needed to resolve inconsistencies in mobility and counterforce capability. Recommendations inherent in the conclusions are summarized below.

Force Structure

The Marine Corps should retain its current "amphibious" force structure design as best suited to the evolving defense environment. Force structure initiatives that would enhance effectiveness of this basic design include:

- Increase the proportion of reserve motor transport, assault amphibian, self-propelled artillery, and tank units as a hedge against employment in Central Europe.
- Design additional antitank, antiaircraft, and EW capabilities into the structure, plus antiaircraft suppression devices and all-weather capabilities for Marine aviation.
- Dedicate specific sealift to move follow-on MAF's.
- Apply technology to save manpower.
- Readdress limited manpower resources to combat forces by curtailing other functions such as security forces.
- Apply technology to reduce size and weight as well as the manpower requirements of the MAF's Assault Follow-on Echelon, in order to enhance the capability of mobility forces.

Manpower

Manpower policies should continue unchanged.

Force Training

Force training initiatives should duplicate contingency scenarios as closely as possible, to ensure doctrinal and practical compatibility with other services involved as well as the broad spectrum of tactical situations that could occur.

Logistics

Logistic initiatives should work toward increasing the efficiency of the mobility forces moving the MAF to combat, and the seaborne logistic train that maintains the MAF in the objective area.

Research and Development

Research and development initiatives should attempt not only to create the force capabilities called for above but also emphasize the development of tactical concepts maximizing the combat effectiveness of the evolving Marine forces in differing contingencies.

ENDNOTES

1. The material in this section represents a compilation of data from Education Center, ECP 1-4, *Fleet Marine Force Organization 1977* (Quantico, VA: Marine Corps Development and Education Command, 1977); US, Departments of the Army, the Navy, and the Air Force, *Doctrine for Amphibious Operations* (Washington, DC: Government Printing Office, 1976); US, Department of Defense, *Manpower Requirements Report for FY 1978* (March 1977); personal experience of the author while serving as a staff officer at Headquarters, USMC, 1974-77; and updated data received from Headquarters.
2. *National Security Act of 1947, Public Law 80-253* (61 Stat. 495) as amended through 30 September 1973.
3. General Louis H. Wilson, Jr., US Marine Corps, "Ready-Amphibious-Marine," US Naval Institute *Proceedings*, November 1977, p. 23.
4. US, Department of Defense, *Annual Defense Department Report, FY 1976 and FY 1977*, Report of Secretary of Defense James R. Schlesinger to the Congress on the FY 1976 and Transition Budgets, FY 1977 Authorization Request and FY 1976-1980 Defense Programs (February 5, 1975), p. III-26.
5. Martin Binkin and Jeffrey Record, *Where Does the Marine Corps Go From Here?* (Washington, DC: The Brookings Institution, 1976), p. vii.
6. *Ibid.*, pp. vii, 2-3, 6, 32, 33-34.
7. *Ibid.*, pp. 35-41.
8. *Ibid.* p. 56.
9. *Ibid.*, p. 65.
10. *Ibid.*, pp. 87-88.
11. US, Congress, Senate, Committee on Armed Services, *Authorizing Appropriations for Fiscal Year 1976 and July-September 1976 Transition Period for Military Procurement, Research and Development, and Active Duty, Selected Reserve, and Civilian Personnel Strengths and for Other Purposes*, S. Rept. 94-146 to Accompany S. 920, 94th Cong., 1st sess. (Washington, DC: Government Printing Office, 1975), p. 116.

12. US, Congress, Senate, Committee on Armed Services, *Authorizing Appropriations for Fiscal Year 1977 for Military Procurement, Research and Development, and Active Duty, Selected Reserve, and Civilian Personnel Strengths and for Other Purposes*, S. Rept. 94-878 to Accompany H.R. 1243 94th Cong., 2d sess. (Washington, DC: Government Printing Office, 1976), p. 128.
13. US, Congress, Senate, Committee on Armed Services, *Authorizing Appropriations for Fiscal Year 1978 for Military Procurement, Research and Development, Active Duty, Selected Reserve, and Civilian Personnel Strengths and for Other Purposes*, S. Rept. 95-129 to accompany H. R. 5970, 95th Cong., 1st sess. (Washington, DC: Government Printing Office, 1977), p. 115.
14. Senator Sam Nunn, Press Release for November 18, 1977, *Speech on Challenges to the US Marine Corps*, delivered to Albany, Georgia, Chamber of Commerce on 18 November 1977.
15. US, Department of Commerce, Bureau of the Census, "Population Estimates and Projections," *Current Population Reports*, Series P-25, N601 (October 1975): Table 8, cited by US, Congress, Committee on Armed Services, *Achieving America's Goals: National Service or the All-Volunteer Armed Force?* by William R. King, Committee Print, Study, 95th Cong., 1st sess. (Washington, DC: Government Printing Office, 1977), p. 21.
16. US, Department of Defense, *Annual Defense Department Report, FY 1978*, Report of Secretary of Defense Donald H. Rumsfeld to the Congress on FY 1978 Budget 1978 Authorization Request and FY 1978-82 Defense Programs (January 17, 1977), p. 5; US, Department of Defense, *Department of Defense Annual Report, Fiscal Year 1979* (February 2, 1978), p. 13.
17. Harold Brown, Secretary of Defense, "The Impact of the Energy Crisis on National Defense," *Naval Supply Corps Newsletter* (August 1977), p. 34; US, Department of State, Bureau of Public Affairs, Office of Media Services, *Toward a Strategy of Independence*. Special Report, No. 17 (July 1975), pp. 5-6; US, Central Intelligence Agency, *The International Energy Situation Outlook to 1985* (April 1977), p. 15; Brown, *Annual Report FY 1979*, p. 16.
18. Ian Bowen, *Economics and Demography* (London: George Allen & Unwin Ltd., 1976), p. 10.

19. US, Central Intelligence Agency, *International Energy Situation*, pp. 14-17; Sterling Wortman, "Food and Agriculture," *Scientific American* 235 (September 1976): 31.
20. Guy J. Pauker, *Military Implications of a Possible World Order Crisis in the 1980s*, A Project Air Force Report prepared for the United States Air Force (R-2003-AF) (Santa Monica: The Rand Corporation, 1977), p. 24.
21. The International Institute for Strategic Studies, *Strategic Survey 1976* (London: The International Institute for Strategic Studies, 1977), pp. 13-18; Brown, *Annual Report FY 1979*, pp. 19-22.
22. *Ibid.*, pp. 10-11, 18-26, 114-118.
23. See, for example, US, Congress, Senate, *Report on FY 1978 Personnel Strengths*, p. 115.
24. For detailed discussion, see section entitled "Criticism of the Current Structure" of this report.
25. US, Congress, Senate, Committee on Armed Services, Subcommittee on Manpower and Personnel, "Authorization Request for Active Duty, Reserve and Civilian Manpower and Training Loads, Status of the All-Volunteer Force," Stenographic Transcript of Hearings (Washington, DC: Alderson Printing Co., Inc., 1977), p. 2-67, line 25, through p. 2-68, line 24.
26. Colonel Joseph E. Hopkins, USMC, interview held at Headquarters, US Marine Corps, Washington, DC, 14 February 1978.
27. US, Congress, Senate, Committee on Armed Services, *Authorizations, Hearings before the Senate Committee on Armed Services on S. 1210*, 95th Cong., 1st sess., 1977, pp. 956, 970-971.
28. *Ibid.*, p. 958.
29. Education Center, *Fleet Marine Force Organization*, pp. 6-7.
30. *Ibid.*, pp. 13-26.
31. Wilson, "Ready-Amphibious-Marine," p. 24.
32. US, Congress, Senate, Committee on Appropriations, *Defense Manpower, Hearings before a Subcommittee of the Senate Committee on Appropriations on H. R. 7933*, 95th Cong., 1st sess, 1977, p. 536.
33. *Ibid.*, pp. 522-524.

34. Ibid., p. 530. Also, US Marine Corps, "Study of Potential for Increased Civilianization of Military Positions," enclosed in Assistant Secretary of the Navy (Manpower and Reserve Affairs) memorandum, dated 14 March 1977, to the Assistant Secretary of Defense (Manpower and Reserve Affairs), subject: Use of Military Manpower, p. 3.
35. US, Department of Defense, *Military Manpower Training Report for FY 1978* (March 1977), p. XI-3 and p. 31 of appended report on efficiency and effectiveness of military training.
36. US, Congress, *Senate Hearings on Authorizations, 1977*, pp. 958-960.
37. Ibid., pp. 956, 980.
38. Author's analysis of data in Marine Corps Development and Education Command, *Landing Force Organizational Systems Study* (Quantico, VA: Marine Corps Development and Education Command, 1976), pp. 1-1 through 1-7.
39. Major John David, USMC, interview held at Headquarters, US Marine Corps, Washington, D.C., 14 February 1978.
40. Binkin and Record, *Marine Corps*, p. 20.
41. US, Congress, *Senate Hearings on Defense Manpower, 1977*, pp. 522-524.
42. US, Department of Defense, "Draft FY 1979 Defense Manpower Requirements Report," February 3, 1978, p. XI-6.
43. US, Marine Corps, draft study, "Utilization of Women," by Code MPP, Headquarters, US Marine Corps, March 1977, p. 3.
44. US, Marine Corps, "Civilianization," p. 3.
45. US, Department of Defense, *Training Report, FY 1978*, p. XI-3.
46. SMLS Study Panel, Development Center, *Seaborne Mobile Logistic Systems*, Executive Summary of Final Report (Quantico, VA: Marine Corps Development and Education Command, 1975), pp. 1-3 to 1-5.

BIBLIOGRAPHY

- Binkin, Martin, and Record, Jeffrey. *Where Does The Marine Corps Go From Here?* Washington, DC: The Brookings Institution, 1976.
- Bowen, Ian. *Economics and Demography*. London: George Allen & Unwin Ltd., 1976.
- Brown, Harold. "The Impact of the Energy Crisis on National Defense." *Naval Supply Corps Newsletter*, August 1977, p. 34.
- David, John, Major, USMC. Headquarters, US Marine Corps, Washington, DC. Interview, 14 February 1978.
- Education Center. ECP 1-4. *Fleet Marine Force Organization 1977*. Quantico, VA: Marine Corps Development and Education, 1977.
- Hopkins, Joseph E., Colonel, USMC. Headquarters, US Marine Corps, Washington, DC. Interview, 14 February 1978.
- Marine Corps Development and Education Command. *Landing Force Organizational Systems Study*. Quantico, VA: Marine Corps Development and Education Command, 1976.
- Nunn, Sam, Senator. Press Release. *Speech on Challenges to the US Marine Corps*. Delivered to Albany, Georgia, Chamber of Commerce, 18 November 1977.
- Pauker, Guy J. *Military Implications of a Possible World Order Crisis in the 1980's*. A Project Air Force report prepared for the United States Air Force (R-2003-AF). Santa Monica: The Rand Corporation, 1977.
- SMLS Study Panel. Development Center. *Seaborne Mobile Logistic System*. Executive Summary of Final Report. Quantico, VA: Marine Corps Development and Education Command, 1975.
- The International Institute for Strategic Studies. *Strategic Survey 1976*. London: The International Institute for Strategic Studies, 1977.
- . "The Theatre Balance between NATO and the Warsaw Pact." *The Military Balance 1976-1977*. London: The International Institute for Strategic Studies, 1976.

US. Central Intelligence Agency. *The International Energy Situation Outlook to 1985*, April 1977.

US. Congress. Senate. Committee on Appropriations. *Defense Manpower, Hearings before a Subcommittee of the Senate Committee on Appropriations on H.R. 7933*, 95th Cong., 1st sess., 1977.

———. Senate. Committee on Armed Services. *Authorizing Appropriations for Fiscal Year 1976 and July-September 1976 Transition Period for Military Procurement, Research and Development, and Active Duty, Selected Reserve, and Civilian Personnel Strengths and for Other Purposes*. S. Rept. 94-146 to accompany S. 920, 94th Cong., 1st sess. Washington, DC: Government Printing Office, 1975.

———. Senate. Committee on Armed Services. *Authorizing Appropriations for Fiscal Year 1977 for Military Procurement, Research and Development and Active Duty, Selected Reserve, and Civilian Personnel Strengths and for Other Purposes*. S. Rept. 94-878 to accompany H. R. 12438, 94th Cong., 2d sess. Washington, DC: Government Printing Office, 1976.

———. Senate. Committee on Armed Services. *Authorizing Appropriations for Fiscal Year 1978 for Military Procurement, Research and Development, Active Duty, Selected Reserve, and Civilian Personnel Strengths and for Other Purposes*, S. Rept. 95-129 to accompany H.R. 5970, 95th Cong., 1st sess., Washington, DC: Government Printing Office, 1977.

———. Senate. Committee on Armed Services. *Authorizations, Hearings before the Senate Committee on Armed Services on S. 1210*. 95th Cong., 1st sess., 1977.

———. Senate. Committee on Armed Services. Subcommittee on Manpower and Personnel. "Authorization Request for Active Duty, Reserve and Civilian Manpower and Training Loads; Status of the All-Volunteer Force," Stenographic Transcript of Hearings. Washington, DC: Alderson Printing Co., 1977.

US. Departments of the Army, the Navy, and the Air Force. *Doctrine for Amphibious Operations*. Washington, DC: Government Printing Office, 1976.

- US. Department of Commerce. Bureau of the Census. "Population Estimates and Projections." *Current Population Reports*. Series P-25, N601 (October 1975): Table 8. Cited by US Congress, Committee on Armed Services. *Achieving America's Goals: National Service or the All-Volunteer Armed Forces?* by William R. King. Committee Print. Study. 95th Cong., 1st sess. Washington, DC: Government Printing Office, 1977.
- US. Department of Defense. *Annual Defense Department Report, FY 1976 and FY 1977*. Report of Secretary of Defense James R. Schlesinger to the Congress on the FY 1976 and Transition Budgets, FY 1977 Authorization Request and FY 1976-1980 Defense Programs, February 5, 1975.
- . *Annual Defense Department Report, FY 1978*. Report of Secretary of Defense Donald H. Rumsfeld to the Congress on the FY 1978 Budget, FY 1979 Authorization Request and FY 1978-82 Defense Programs, January 17, 1977.
- . *Department of Defense Annual Report, Fiscal Year 1979*, February 2, 1978.
- . "Draft FY 1979 Defense Manpower Requirements Report," February 3, 1978.
- . *Manpower Requirements Report for FY 1978*, March 1977.
- . *Military Manpower Training Report for FY 1978*, March 1977.
- US. Department of State. Bureau of Public Affairs. Office of Media Services. *Toward a Strategy of Independence*. Special Report, No. 17, July 1975.
- US. Marine Corps. "Study of Potential for Increased Civilianization of Military Positions." Enclosed in Assistant Secretary of the Navy (Manpower and Reserve Affairs) Memorandum, dated 14 March 1977, to the Assistant Secretary of Defense (Manpower and Reserve Affairs), subject: Use of Military Manpower.
- . Draft study, "Utilization of Women," by Code MPP, Headquarters, US Marine Corps, March 1977.
- Wilson, Louis H., General, USMC. "Ready-Amphibious-Marine." US Naval Institute. *Proceedings*. November 1977, pp. 18-25
- Wortman, Sterling. "Food and Agriculture." *Scientific American* 235 (September 1976): 31-39.

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